STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

MICHAEL F. EASLEY
GOVERNOR

LYNDO TIPPETT
SECRETARY

July 14, 2003

Addendum No. 1

RE: Contract ID: C200692 (Proposal No.1)
Work Order No. 8.U401717
F. A. No. NHF-540 (1)
Wake County (R-2000G)
I-540 (Northern Wake Expressway) From South of
SR-2215 (Buffaloe Road) To US-64 East of Knightdale.

July 22, 2003 Special Letting

To Whom It May Concern:

Reference is made to the plans and proposal form furnished to you on the above-mentioned project.

The following revisions have been made to the plans:

Roadway typical sheet nos. 2-A and 2-B have been revised to correct the limits of concrete paving on the ramps. Please void sheet nos. 2-A and 2-B in your plans and staple the revised sheet nos. 2-A and 2-B thereto.

Sheet nos. S-35, S-37, S-69, and S-71 of the structure plans have been revised to show a work bridge instead of a workpad for temporary access. Please void sheet nos. S-35, S-37, S-69 and S-71 in your plans and staple the revised sheet nos. S-35, S-37, S-69 and S-71 thereto.

Sheet nos. S-105, S-107 and S-108 of the structure plans have been revised to show temporary shoring and to indicate no traffic on stage 1 bridge construction. Please void sheet nos. S-105, S-107 and S-108 in your plans and staple the revised sheet nos. S-105, S-107 and S-108 thereto.

The following revisions have been made to the proposal form:

Page No. 432 has been revised to show the location of wetland sites no. 13 and 14. Please void Page No. 432 in your proposal and staple the revised Page No. 432 thereto.

MAILING ADDRESS:
NC DEPARTMENT OF TRANSPORTATION
CONTRACTS & PROPOSALS
1591 MAIL SERVICE CENTER
RALEIGH NC 27699-1591

TELEPHONE: 919-250-4124
FAX: 919-250-4127

WEBSITE: WWW.DOH.DOT.STATE.NC.US

LOCATION:
CENTURY CENTER COMPLEX
BUILDING B - ENTRANCE B15
1020 BIRCH RIDGE DRIVE
RALEIGH NC

New Page Nos. 432-A, 432-B and 432-C and are being added to include wetland sites No. 13 and 14. Please add new Page Nos. 432-A, 432-B and 432-C after revised Page No. 432. Page No. 473 has been revised to include sites 13 and 14. Please void Page no. 473 in your proposal and staple the revised Page No. 473 thereto.

Page No. 458, labeled "Workpad Detail" is obsolete. Please void Page No. 458 in your proposal and staple the revised Page No. 458 (Intentionally Blank) thereto.

By copy of this addendum, the quantities for the following pay items shown on Page No. 3 and 4 of the item sheets are hereby revised:

Line Item & Description	Old Quantity	New Quantity
51-1121000000-M-520 Aggregate Base Course	38,100MTN	35,900MTN
56-1489000000-M-610 Asphalt Conc. Base Course, Type B25.0B	26,900MTN	26,925MTN
59-1503000000-M-610 Asphalt Conc. Inter. Course, Type I19.0C	20,100MTN	16,780MTN
60-1519000000-M-610 Asphalt Conc. Surface Course, Type S9.5B	11,775MTN	11,920MTN
61-1539000000-M-610 Asphalt Conc. Surface Course, Type S12.5C	12,750MTN	12,145MTN
62-1560000000-M-620 Asphalt Binder For Plant Mix, Grade PG-64-22	3,760MTN	3,694MTN
63-1565000000-M-620 Asphalt Binder For Plant Mix, Grade PG-70-22	705MTN	669MTN
65-187470000000-M-710 300MM Port. Cem. Conc. Pavement through Lanes (with Dowels)	131,090M2	131,500M2
66-18690000000-M-710 300MM Port. Cem. Conc. Pavement Miscellaneous (without Dowels)	6,810M2	4,350M2
68-1913000000-M-720 Concrete Shoulders Adjacent to 300MM Pavement	70,430M2	72,975M2

The Contractor's bid prices should be based on these revised pay item quantities. By copy of this addendum, the following lump sum pay item on Page 20 of the item sheets, is hereby deleted: "328-8017000000-N-SP Construction, Maintenance, & Removal of Temporary Access at Sta. 445 + 88.000-L-RT-". All cost for the temporary access at this location should be included in the pay item for the left lane. The contract will be prepared accordingly.

The Expedite file has been updated to reflect these revisions. Please download the EBS addendum file and follow the instructions for applying the addendum. Bid Express will not accept your bid unless all addendums have been applied.

Sincerely,

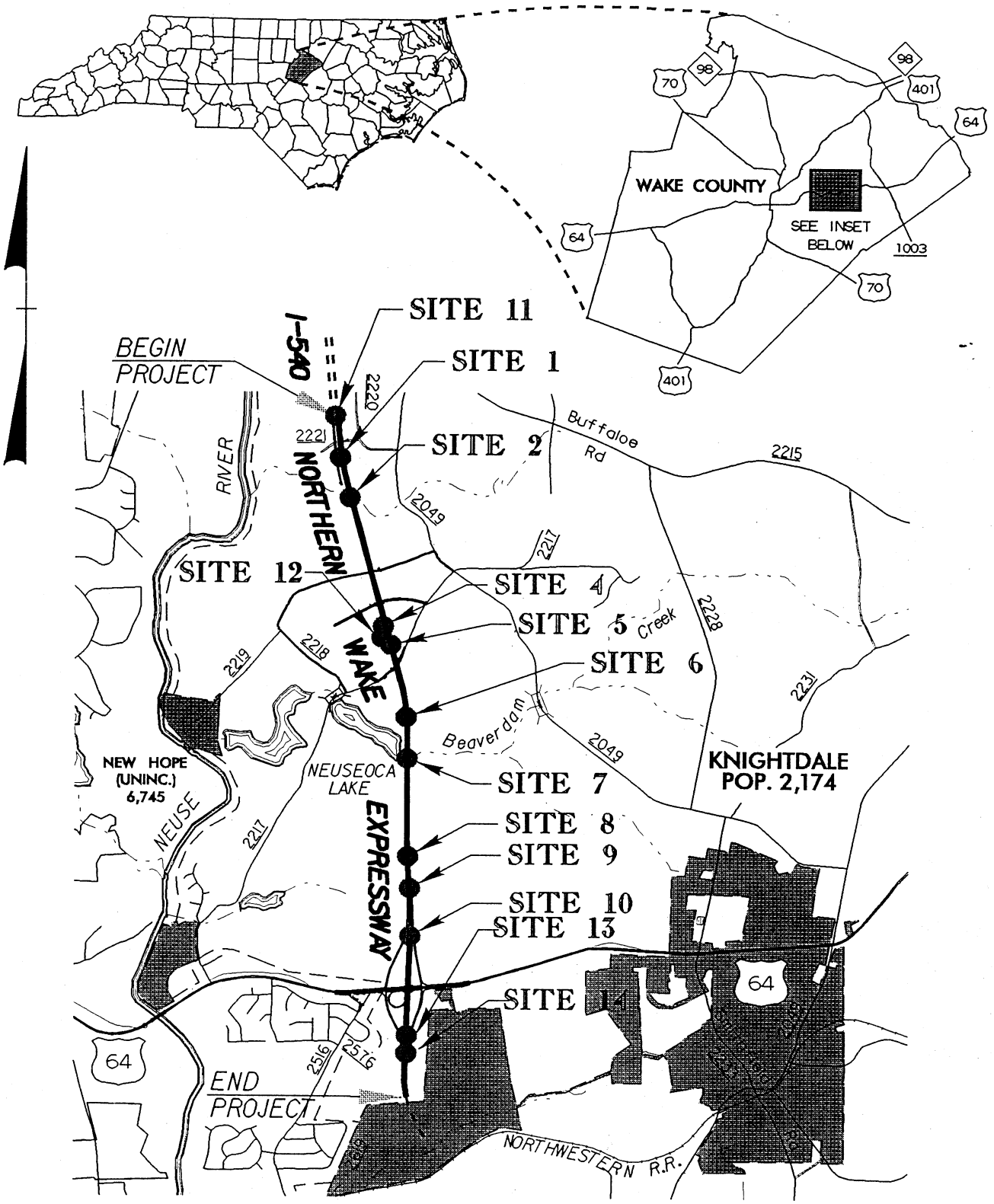
R. A. Garris, P.E.
Contract Officer

RAG/jag/pa

Attachments

Cc: Mr. J. D. Goins, P.E.
Mr. S. D. DeWitt, P.E.
Mr. J. G. Nance, P.E.
Ms. D. M. Barbour, P.E.
Mr. J. V. Barbour, P.E.
Mr. Scott Blevins, P.E.
Mr. J. F. Sullivan, III (FHWA)
Mr. Mark Staley (2)
Mr. Aydren Flowers
Mr. Ron Davenport, Jr., P.E.
Ms. Kim Canady
Ms. Yang Steelman
Project File (2)

Revised 7-14-03



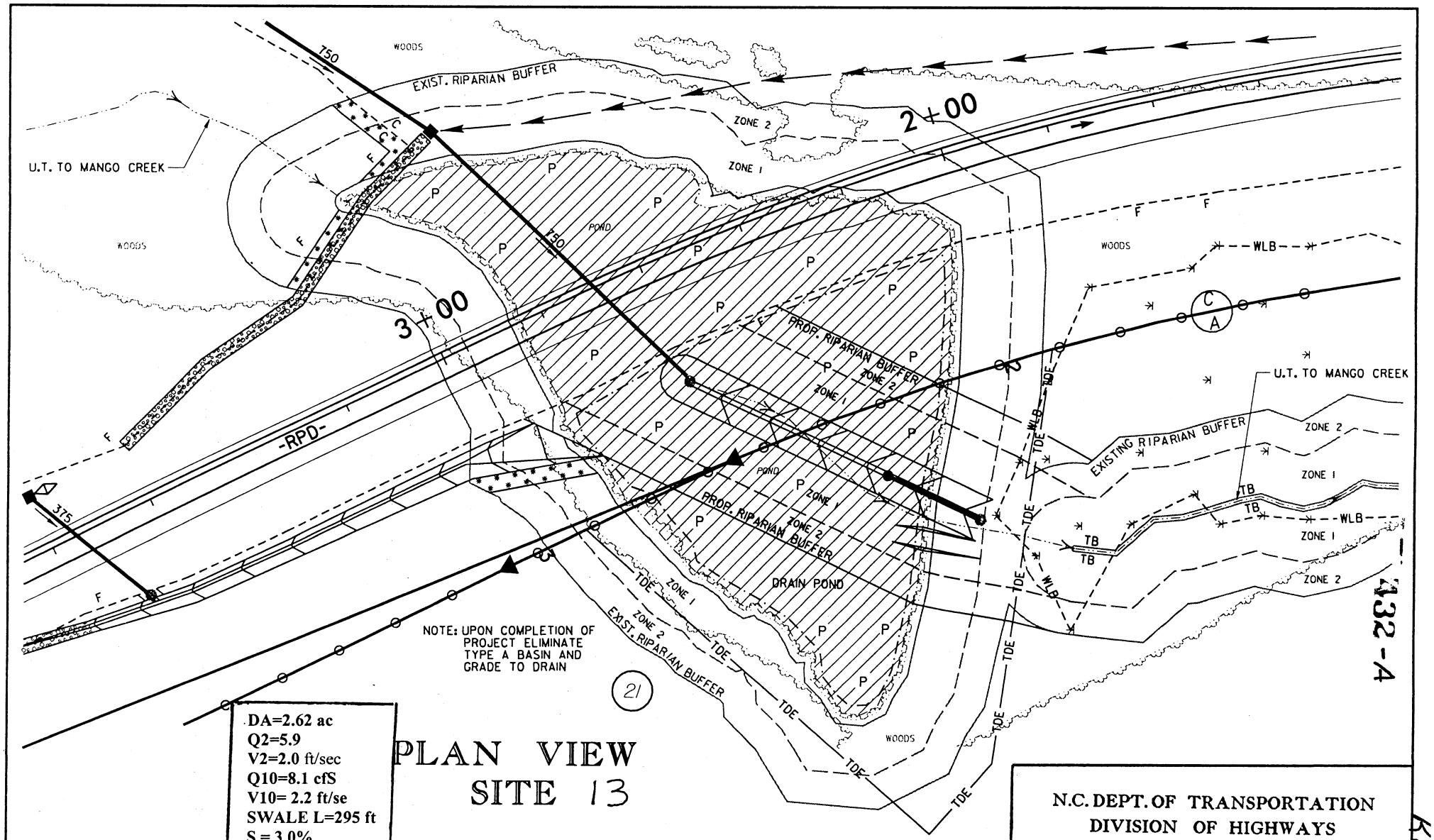
SCALE
.5 0 1 KM

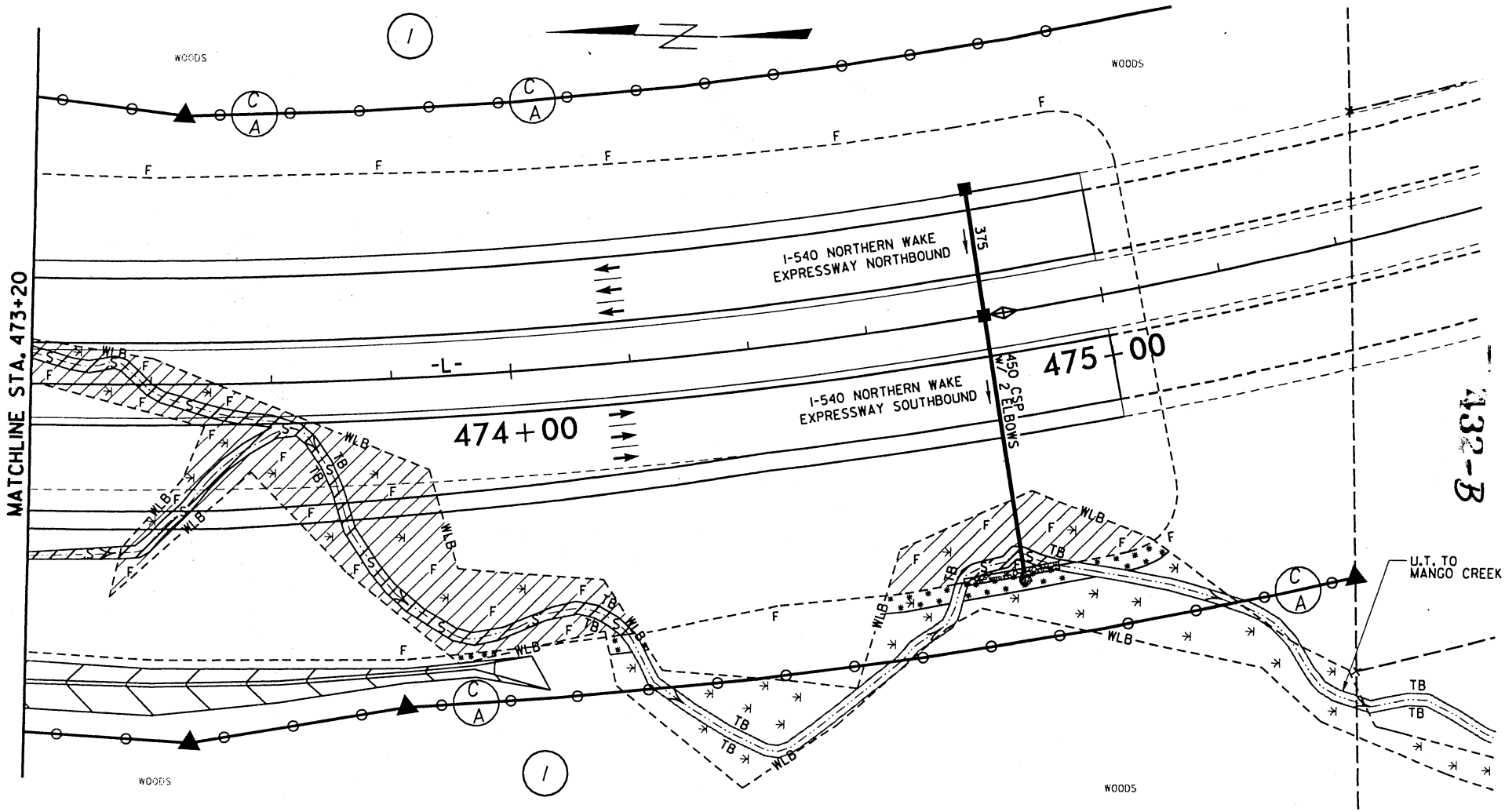
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAKE COUNTY

PROJECT: 8.U401712 (R-2000G)
I-540 NORTHERN WAKE EXPRESSWAY

SHEET ____ OF ____ 7/3/03


T50
WOODS
EXIST. RIPARIAN BUFFER
ZONE 2
ZONE 1
2+00
U.T. TO MANGO CREEK
POND
3+00
PROP. RIPARIAN BUFFER
-RPD-
WLB
TDE
TB
EXISTING RIPARIAN BUFFER
DRAIN POND
NOTE: UPON COMPLETION OF PROJECT ELIMINATE TYPE A BASIN AND GRADE TO DRAIN
21
DA=2.62 ac
Q2=5.9
V2=2.0 ft/sec
Q10=8.1 cfS
V10= 2.2 ft/se
SWALE L=295 ft
S = 3.0%
SS = 3:1
PLAN VIEW
SITE 13
DENOTES MECHANIZED CLEARING
DENOTES FILL IN SURFACE WATER (POND)
10 0 20
N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
WAKE COUNTY
PROJECT: 8.U401712 (R-2000G)
I-540 NORTHERN WAKE EXPRESSWAY
SHEET ___ OF ___
7/3/03
Revised 7-14-03
-L- 432-A



PLAN VIEW
SITE 14

DENOTES MECHANIZED CLEARING

DENOTES FILL IN WETLANDS

DENOTES FILL IN SURFACE WATERS

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

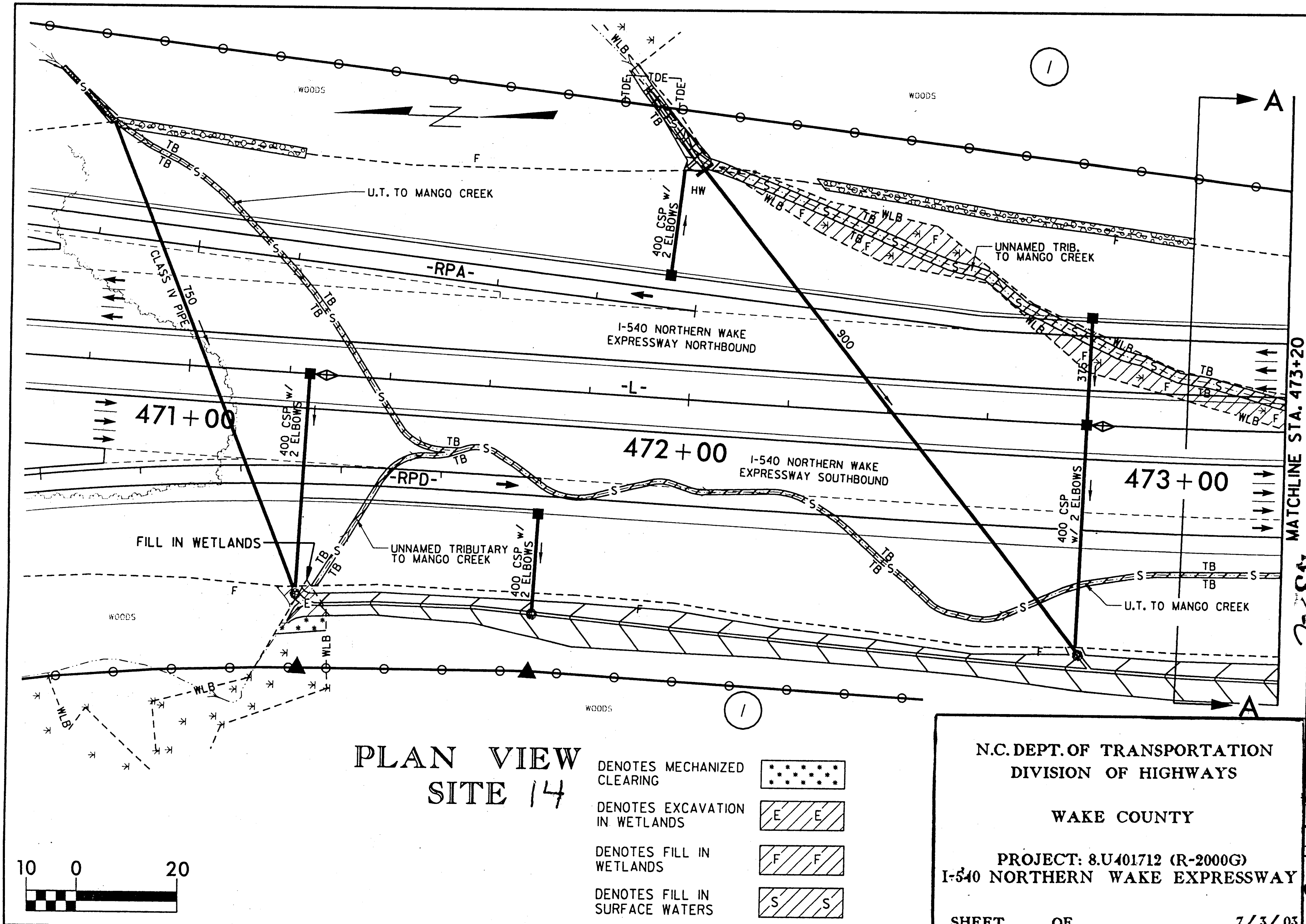
WAKE COUNTY

PROJECT: 8.U401712 (R-2000G)
I-540 NORTHERN WAKE EXPRESSWAY

SHEET ____ OF ____ 7/3/03

Revised 7-14-03

432-B



PLAN VIEW
SITE 14

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAKE COUNTY

PROJECT: 8.U401712 (R-2000G)
I-540 NORTHERN WAKE EXPRESSWAY

SHEET ____ OF ___ 7/3/03

432-C

Revised 7-14-03

IMPACT SUMMARY

			WETLAND IMPACTS					SURFACE WATER IMPACTS						BUFFER IMPACTS		
Site No.	Station (From / To)	Structure Size	Fill In Wetlands (ha)	Temp. Fill In Wetlands (ha)	Excavation In Wetlands (ha)	Isolated Wetland (ha)	Mechanized Clearing (Method III) (ha)	Fill In SW (Natural) (ha)	Fill In SW (Pond) (ha)	Temp. Fill In SW (ha)	Existing Channel Impacted (m)	Relocated Channel (m)	Enclosed Channel (m)	Zone 1 (ha)	Zone 2 (ha)	Mechanized Clearing (Method III) (ha)
9	-L- 456+64L / -L- 457+47R	1 @ 2.7 x 2.1 RCBC	0.185	—	—	—	0.007	—	0.212	—	—	—	—	0.155	0.100	0.015
10	-L- 459+61R / -L- 462+94R	1050, 750	0.607	—	0.042	0.092	0.085	0.045	—	—	388.2	95.0	158.5	0.601	0.364	0.030
13	Y5 RPA 4+17R/ Y5 RPA 4+41L	600	—	—	—	—	—	0.004	—	—	67.9	—	43.3	—	—	—
	Y5 RPD 2+00R Y5 RPD3+04 L	750	—	—	—	—	—	—	0.562	—	—	—	—	0.372	0.278	0.018
14	-L- 471+20R/ -L- 474+17R	1 @ 750, 1 @ 900	0.171	—	0.003	—	0.004	0.092	—	—	624.700	—	221.5	—	—	—
	-L- 474+57R/ -L- 475+22R	—	0.035	0.006	—	—	0.012	0.004	—	0.003	18.000	—	—	—	—	—
SHEET SUB TOTALS:			0.998	0.006	0.045	0.092	0.108	0.145	0.774	0.003	1098.8	95.0	423.300	1.128	0.742	0.062
PROJECT TOTALS:			2.423	0.006	0.274	0.092	0.327	0.224	2.550	0.003	1815.2	95.0	820.100	3.256	2.231	0.398

DENOTES DRAINING OF POND IMPACT.

DENOTES NO DEFINED CHANNEL.

N.C. DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS

WAKE COUNTY

PROJECT: 8.U401712
NCDOT T.I.P. NO: R-2000G

SHEET OF 7/3/03

173

Revised 7-14-03

Revised 7-14-03

PAGE

INTENTIONALLY

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PROJECT REFERENCE NO.	SHEET NO.
R-2000G	2-B

METRIC

5m 0 10m

CONST. REV.

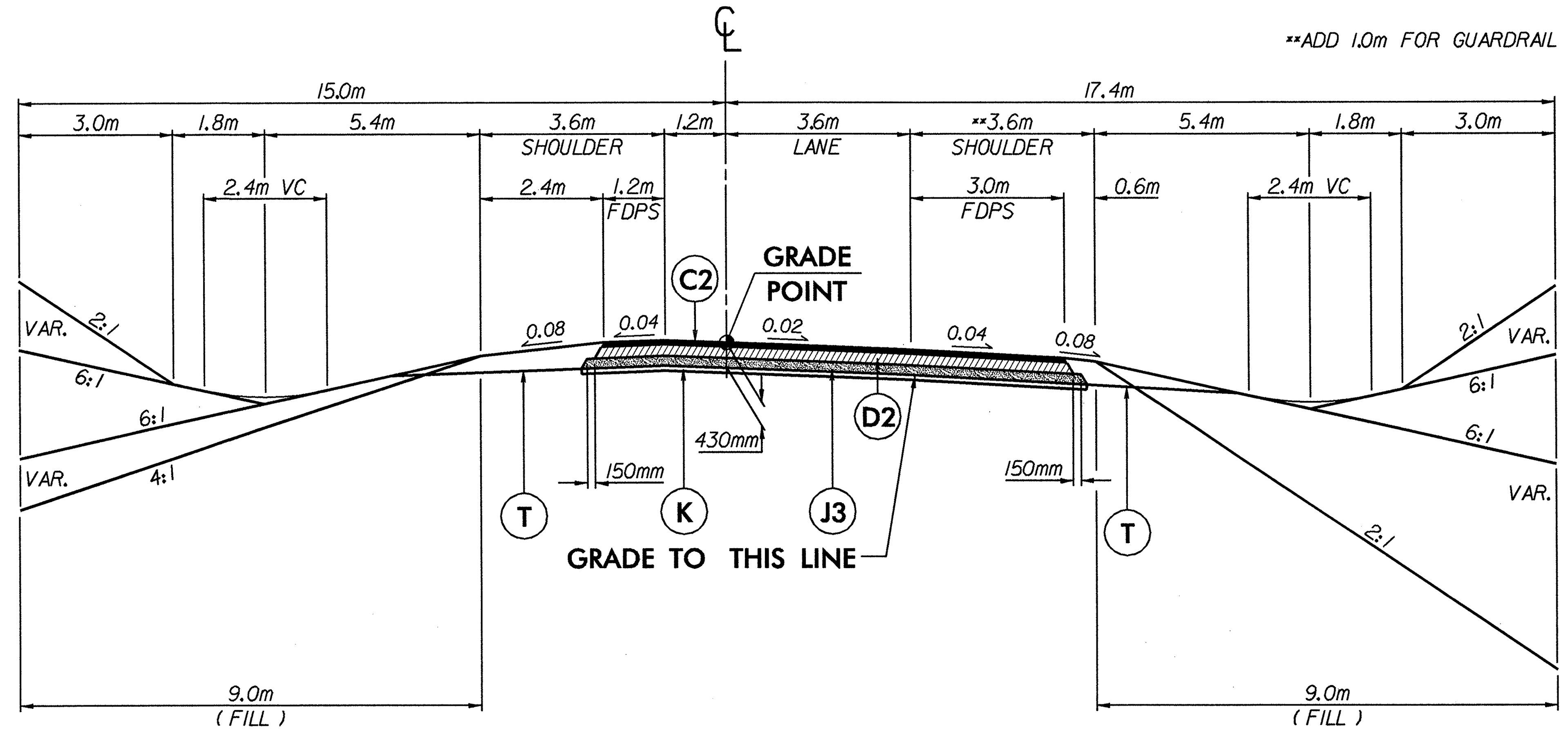
R/W REV.

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 14160 ENGINEER DOUGLAS B. SAUNDERS — 7/9/03

PAVEMENT DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 13368 ENGINEER DON-CHI CHEN — 7/10/03

TRANSITE CONSULTING ENGINEERS, INCORPORATED
1300 Paddock Drive, Suite G-10
Raleigh, N.C. 27609

N.C. Dept. of Transportation
Pavement Management
1020 Birch Ridge Drive
Raleigh, NC 27610



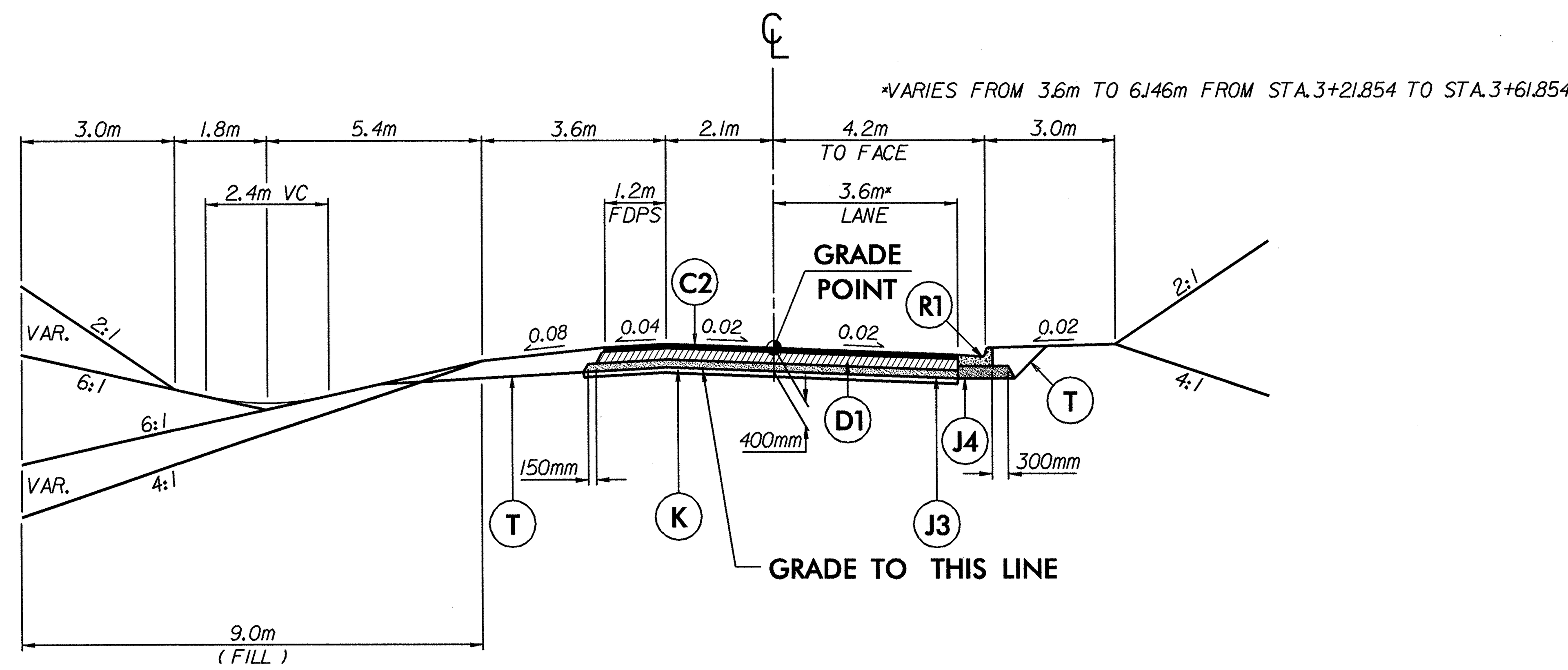
TYPICAL SECTION NO. 3

Ramps

USE TYPICAL SECTION NO. 3 AT THE FOLLOWING LOCATIONS:

RAMP A -Y5- STA. 1+59.635 TO STA. 6+10.906
RAMP D -Y5- STA. 1+17.764 TO STA. 5+49.688
RAMP B -Y5- STA. 2+21.548 TO STA. 6+03.430

SEE PLANS FOR LOCATION OF TURNING LANES AND TAPERS



TYPICAL SECTION NO. 4

Loop D

USE TYPICAL SECTION NO. 4 AT THE FOLLOWING LOCATIONS:

LOOP D -Y5- STA. 0+62.379 TO STA. 3+61.854

SEE PLANS FOR LOCATION OF TURNING LANES AND TAPERS

C2	70mm S12.5C
D1	80mm I19.0C
D2	110mm I19.0C
J3	250mm ABC
J4	VAR. DEPTH ABC
K	SUBGRADE STABILIZATION
R1	750mm C & G
T	EARTH MATERIAL

ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

197.001.001/DGN/TYPICAL/r2000G.typ rev. date: 07-09-03

METRIC

5m 0 10m

CONST. REV.

R/W REV.

PROJECT REFERENCE NO.	SHEET NO.
R-2000G	2-A

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 14160 ENGINEER DOUGLAS B. SAUNDERS

7/1/03

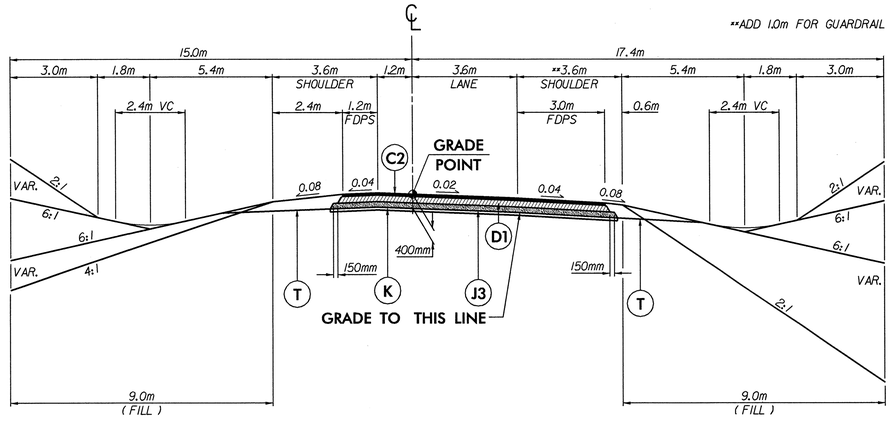
PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 13368 ENGINEER CHI CHEN

7/10/03

TRANSITE CONSULTING
ENGINEERS, INCORPORATED
1300 Paddock Drive, Suite G-10
Raleigh, N.C. 27609

N.C. Dept. of Transportation
Pavement Management
1020 Birch Ridge Drive
Raleigh, NC 27610



TYPICAL SECTION NO. 2

Ramps

C2	70mm	S12.5C
D1	80mm	I19.0C
J3	250mm	ABC
K	SUBGRADE STABILIZATION	
T	EARTH MATERIAL	

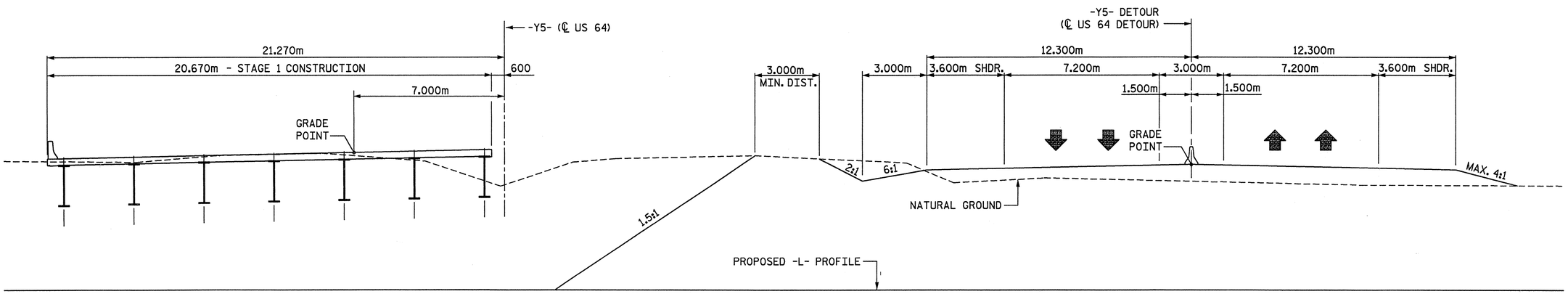
ALL PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

USE TYPICAL SECTION NO. 2 AT THE FOLLOWING LOCATIONS:

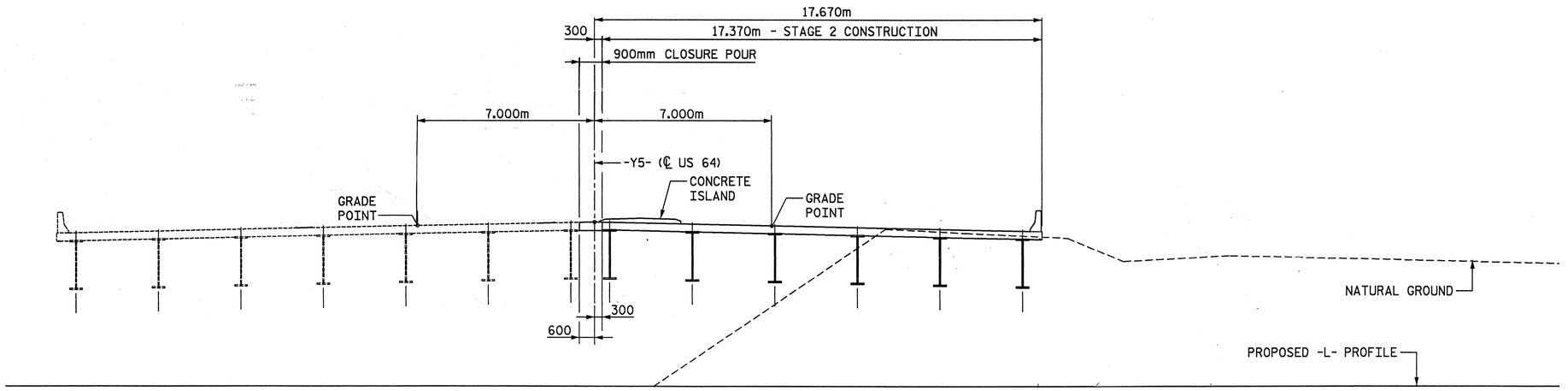
RAMP C –Y5– STA. 1+45.560 TO STA. 6+69.315

SEE PLANS FOR LOCATION OF TURNING LANES AND TAPERS

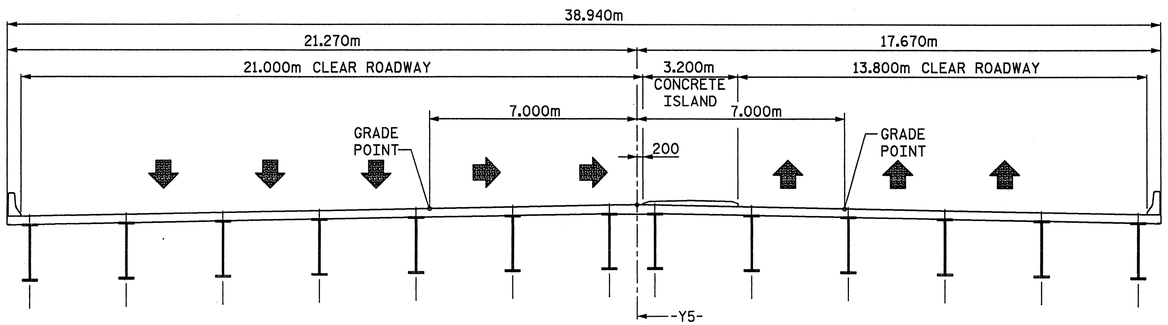
I97.001.001/DGN/TYPICAL/r2000a.typ rev. date: 07-09-03



STAGE 1 CONSTRUCTION



STAGE 2 CONSTRUCTION AND CLOSURE POUR



-Y5- (US 64) BRIDGE

PROJECT NO. R-2000G

WAKE COUNTY

STATION: 465+66.727 -L- POT

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

CONSTRUCTION SEQUENCE FOR BRIDGE ON US 64 OVER I-540 RALEIGH OUTER LOOP

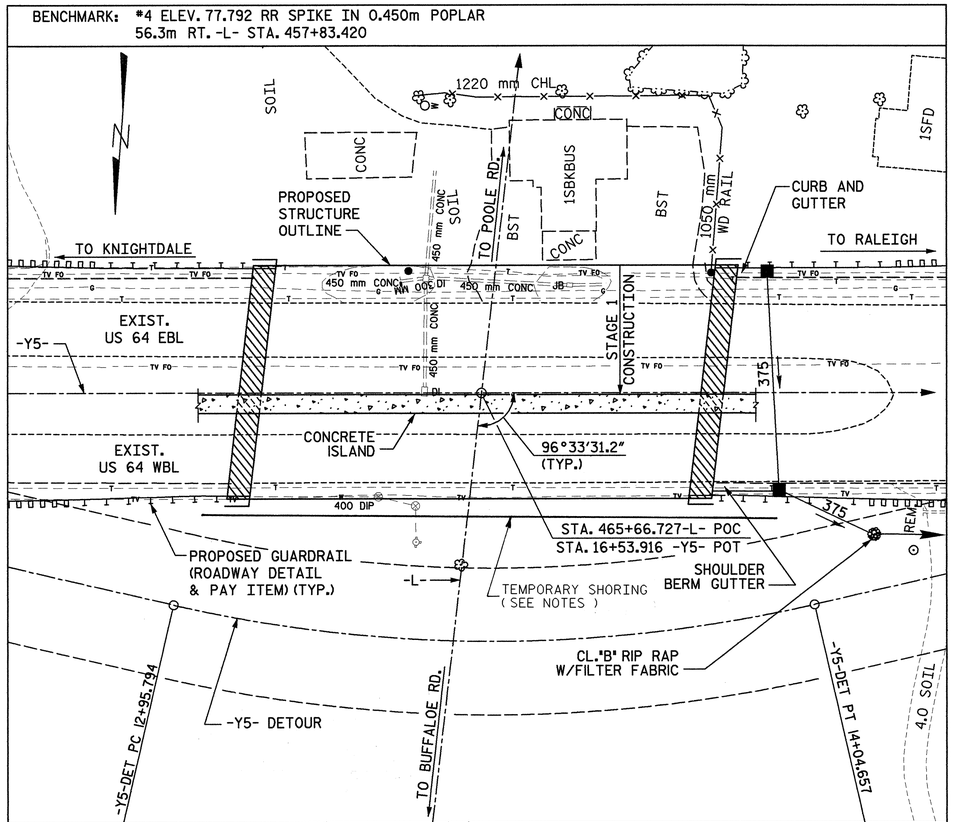
NORTH CAROLINA PROFESSIONAL SEAL 4674 ENGINEER S. BABU NALLAMALA
1-29-02

Nallamala & Wilson, P.A.
1399 Ashleybrook Lane, Suite 130
Winston-Salem, N.C. 27103-2918
Ph: (336) 765-4651 Fax: (336) 765-6194

DWG. NO. 2101(3) - 4

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-108
1			3			TOTAL SHEETS
2			4			145

DRAWN BY : A.S. CALLAWAY DATE : 07/26/01
CHECKED BY : S. Babu Nallamala DATE : 1-29-02



LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

NOTES

ASSUMED LIVE LOAD = MS18 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY A.

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

ALL ELEVATIONS ARE IN METERS.

THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD SPECIFICATIONS.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SNSM.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 360,000 kg OF REINFORCING STEEL, ONE 760mm SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 360,000 kg OF REINFORCING STEEL, TWO 760mm SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS.

ALL STRUCTURAL STEEL SHALL BE AASHTO M270 GRADE 345W AND PAINTED IN ACCORDANCE WITH SYSTEM 4 OF ARTICLE 442-7 OF THE STANDARD SPECIFICATIONS UNLESS OTHERWISE NOTED ON THE PLANS.

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

PILES FOR END BENTS NO. 1 & 2 SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 530 kN EACH.

THE REQUIRED BEARING CAPACITY OF THE SPREAD FOOTINGS AT BENT NO. 1 IS 380 kPa. THE REQUIRED BEARING CAPACITY SHALL BE VERIFIED.

WORK SHALL NOT BE STARTED ON THIS BRIDGE, AT EACH STAGE OF CONSTRUCTION, UNTIL ROADWAY SECTION IN THAT STAGE HAS BEEN EXCAVATED.

WAITING PERIOD FOR THE APPROACH SLAB CONSTRUCTION SHALL BE WAIVED.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR METRIC STRUCTURAL STEEL, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

FOR LIMITS OF TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE TRAFFIC CONTROL PLANS. FOR PAY ITEM FOR TEMPORARY SHORING FOR MAINTENANCE OF TRAFFIC, SEE ROADWAY PLANS.

STEEL SHEET PILING REQUIRED FOR SHORING SHALL BE HOT ROLLED.

TOTAL BILL OF MATERIAL

	FOUNDATION EXCAVATION	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	STRUCTURAL STEEL	HP310x79 STEEL PILES		CONCRETE BARRIER RAIL	100mm SLOPE PROTECTION	TFE EXP. BEARING ASSEMBLIES	ELASTOMERIC BEARINGS	EVAZOTE JOINT SEALS
	LUMP SUM	SQ. METERS	SQ. METERS	CU. METERS	LUMP SUM	Kg	Kg	APPROX. Kg	NO.	LIN. METERS	LIN. METERS	SQ. METERS	LUMP SUM	LUMP SUM	LUMP SUM
SUPERSTRUCTURE	———	2,905.5	2,444.9	———	———	———	———	389,900	———	———	149.228	———	LUMP SUM	LUMP SUM	LUMP SUM
END BENT 1	———	———	———	89.4	LUMP SUM	8,233	———	———	34	204	———	490	———	———	———
BENT 1	LUMP SUM	———	———	213.5	———	19,047	1,692	———	———	———	———	———	———	———	———
END BENT 2	———	———	———	89.1	LUMP SUM	8,212	———	———	34	204	———	440	———	———	———
TOTAL	LUMP SUM	2,905.5	2,444.9	392.0	LUMP SUM	35,492	1,692	389,900	68	408	149.228	930	LUMP SUM	LUMP SUM	LUMP SUM

METRIC

PROJECT NO. R-2000G

WAKE COUNTY

STATION: 465+66.727 -L- POT

SHEET 3 OF 3

NORTH CAROLINA PROFESSIONAL SEAL 4674 ENGINEER S. BABU NALLAMALA

2-26-02

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON US-64 OVER
I-540 RALEIGH OUTER LOOP

1

Nallamala & Wilson, P.A.
1399 Ashleybrook Lane, Suite 130
Winston-Salem, N.C. 27103-2918
Ph: (336) 765-4651 Fax: (336) 765-6194

DWG. NO. 2101(3)-3

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-107
1			3			TOTAL SHEETS
2			4			145

DRAWN BY : A. STEPHEN CALLAWAY DATE : 07/20/01
CHECKED BY : S. Babu Nallamala DATE : 2-22-02

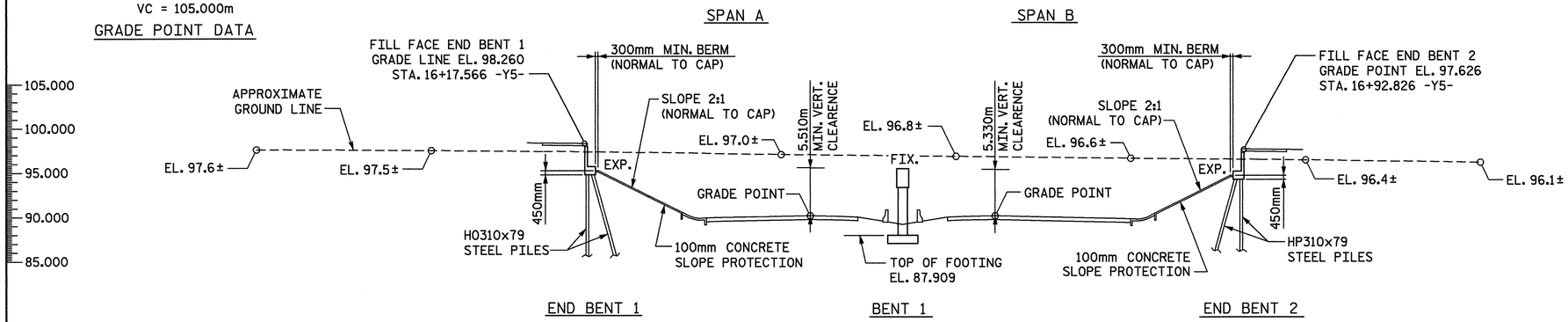
F. A. PROJ. NO. NHF-123-1 (12)

15+80.000 | 16+00.000 | 16+20.000 | 16+40.000 | 16+60.000 | 16+80.000 | 17+00.000 | 17+20.000

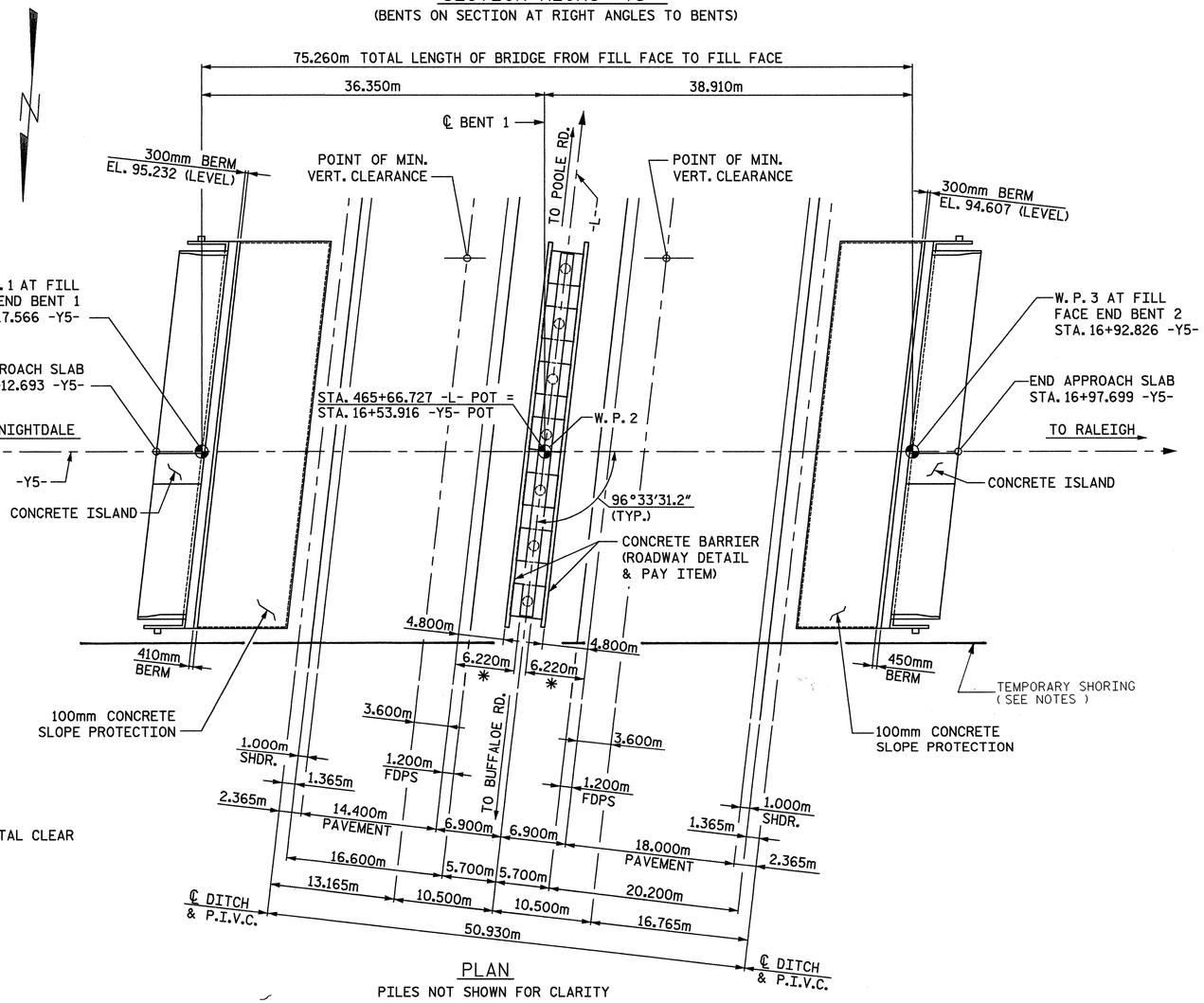
(+)0.3100% △ (-)0.8439%

PVI STA. = 15+70.000
ELEV. = 98.663
VC = 105.000m

GRADE POINT DATA



SECTION ALONG -Y5-
(BENTS ON SECTION AT RIGHT ANGLES TO BENTS)



PLAN
PILES NOT SHOWN FOR CLARITY

* DENOTES HORIZONTAL CLEAR TO FACE OF CAP.

DRAWN BY : A. STEPHEN CALLAWAY DATE : 07/20/01
CHECKED BY : S. Babu Nallamala DATE : 2-22-02

METRIC

PROJECT NO. R-2000G
WAKE COUNTY
STATION: 465+66.727 -L- POT
16+53.916 -Y5- POT
SHEET 1 OF 3 BRIDGE NO. 1016

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

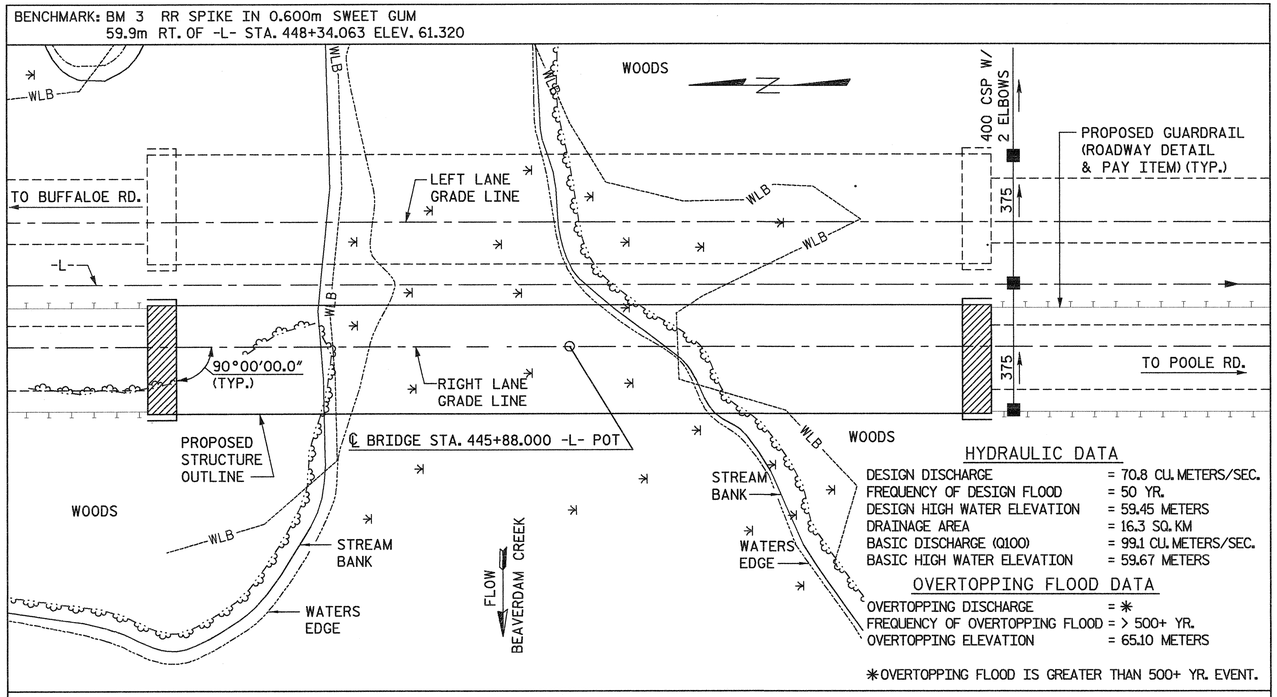
GENERAL DRAWING
FOR BRIDGE ON US 64 OVER I-540 RALEIGH OUTER LOOP

NORTH CAROLINA PROFESSIONAL SEAL 4674 ENGINEER S. BABU NALLAMALA
2-26-02
S. Babu Nallamala

Nallamala & Wilson, P.A.
1399 Ashleybrook Lane, Suite 130
Winston-Salem, N.C. 27103-2918
Ph: (336) 765-4651 Fax: (336) 765-6194

DWG. NO. 2101(3)-1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-105
1			3			TOTAL SHEETS
2			4			



LOCATION SKETCH — FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE & REMOVAL OF TEMPORARY ACCESS	1372mm DIA. DRILLED PIERS NOT IN SOIL	1372mm DIA. DRILLED PIERS IN SOIL	PERMANENT STEEL CASING FOR 1372mm DIA. DRILLED PIERS	CROSSHOLE SONIC LOGGING	CSL TUBES	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS
	LUMP SUM	LIN. METERS	LIN. METERS	LIN. METERS	EACH	LIN. METERS	SQ. METERS	SQ. METERS	CU. METERS	LUMP SUM
SUPERSTRUCTURE	———	———	———	———	———	———	2,418.7	2,331.6	———	———
END BENT 1	———	———	———	———	———	———	———	———	47.5	LUMP SUM
BENT 1	LUMP SUM	10.5	19.7	22.2	1	133.0	———	———	70.0	———
BENT 2	LUMP SUM	11.0	33.2	20.2	1	189.0	———	———	74.4	———
BENT 3	LUMP SUM	13.0	21.8	———	1	151.4	———	———	75.8	———
END BENT 2	———	———	———	———	———	———	———	———	48.8	LUMP SUM
TOTAL	LUMP SUM	34.5	74.7	42.4	3	473.4	2,418.7	2,331.6	316.5	LUMP SUM

TOTAL BILL OF MATERIAL

	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	MODIFIED 1829mm PRESTRESSED CONCRETE GIRDERS		HP360x108 STEEL PILES		CONCRETE BARRIER RAIL	PLAIN RIP RAP CLASS II (600mm THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EXPANSION JOINT SEALS	
	Kg	Kg	NO.	LIN. METERS	NO.	LIN. METERS	LIN. METERS	METRIC TONS	SQ. METERS	LUMP SUM	LUMP SUM	
SUPERSTRUCTURE	———	———	24	785.760	——	———	263.760	———	———	LUMP SUM	LUMP SUM	
END BENT 1	4,512	———	——	———	20	140.0	———	415	420	———	———	
BENT 1	9,877	2,619	——	———	——	———	———	———	———	———	———	
BENT 2	11,563	3,396	——	———	——	———	———	———	———	———	———	
BENT 3	10,773	3,043	——	———	——	———	———	———	———	———	———	
END BENT 2	4,591	———	——	———	20	250.0	———	755	770	———	———	
TOTAL	41,316	9,058	24	785.760	40	390.0	263.760	1,170	1,190	LUMP SUM	LUMP SUM	LUMP SUM

ELECTRICAL CONDUIT SYSTEM
LUMP SUM

DRAWN BY : WESLEY I. JONES, III DATE : 10/14/02
CHECKED BY : [signature] DATE : 12-12-02

R2000G_SD_GD3_2RS.DGN

NOTES

ASSUMED LIVE LOAD = MS18 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY A.

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

ALL ELEVATIONS ARE IN METERS.

THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD SPECIFICATIONS.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SNSM.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 360,000 kg OF REINFORCING STEEL, ONE 760mm SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 360,000 kg OF REINFORCING STEEL, TWO 760mm SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS.

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", NOVEMBER, 1995.

FOR METRIC STRUCTURAL STEEL, SEE SPECIAL PROVISIONS.

THE DRILLED PIERS FOR BENTS NO. 1, 2 AND 3 HAVE BEEN DESIGNED FOR BOTH SKIN FRICTION AND TIP BEARING. THE REQUIRED TIP BEARING CAPACITY IS 1915 kPa.

THE REQUIRED TIP BEARING CAPACITY AT BENTS NO. 1, 2 AND 3 SHALL BE VERIFIED.

THE DRILLED PIERS FOR BENTS NO. 1, 2 AND 3 HAVE BEEN DESIGNED FOR AN APPLIED LOAD OF 2,510 kN EACH AT THE TOP OF THE COLUMN.

PERMANENT STEEL CASING IS REQUIRED FOR THE DRILLED PIERS AT BENT NO. 1 AND THE CASINGS SHALL NOT EXTEND BELOW ELEVATION 53.0m WITHOUT THE ENGINEER'S PERMISSION.

PERMANENT STEEL CASING IS REQUIRED FOR THE DRILLED PIERS AT BENT NO. 2 AND THE CASINGS SHALL NOT EXTEND BELOW ELEVATION 53.5m WITHOUT THE ENGINEER'S PERMISSION.

PERMANENT STEEL CASING IS NOT REQUIRED FOR THE DRILLED PIERS AT BENT NO. 3.

FOR PERMANENT STEEL CASING, SEE SPECIAL PROVISIONS FOR DRILLED PIERS.

DRILLED PIERS AT BENT NO. 1 SHALL EXTEND TO ELEVATIONS NO HIGHER THAN THE FOLLOWING LISTED ELEVATIONS FROM LEFT TO RIGHT: SHAFT 1 = 52.0m, SHAFT 2 = 52.0m, SHAFT 3 = 50.0m, SHAFT 4 = 50.0m AND SATISFY THE REQUIRED TIP BEARING CAPACITY.

DRILLED PIERS AT BENT 2 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 47.5m FOR ALL SHAFTS AND SATISFY THE REQUIRED TIP BEARING CAPACITY.

DRILLED PIERS AT BENT 3 SHALL EXTEND TO ELEVATIONS NO HIGHER THAN THE FOLLOWING LISTED ELEVATIONS FROM LEFT TO RIGHT : SHAFT 1 = 53.0m, SHAFT 2 = 52.0m, SHAFT 3 = 50.0m, SHAFT 4 = 47.0m AND SATISFY THE REQUIRED TIP BEARING CAPACITY.

THE SCOUR CRITICAL ELEVATIONS FOR BENT 1 ARE 53.0. THESE ELEVATIONS ARE FOR USE BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE SCOUR CRITICAL ELEVATIONS FOR BENT 2 ARE THE FOLLOWING LISTED ELEVATIONS FROM LEFT TO RIGHT: SHAFT 1 = 49.5m, SHAFT 2 = 50.5m, SHAFT 3 = 51.5m AND SHAFT 4 = 52.5m. THE SCOUR CRITICAL ELEVATIONS ARE USED BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE SCOUR CRITICAL ELEVATIONS FOR BENT 3 ARE THE FOLLOWING LISTED ELEVATIONS FROM LEFT TO RIGHT: SHAFT 1 = 55.0m, SHAFT 2 = 54.0m, SHAFT 3 = 53.0m AND SHAFT 4 = 52.0m. THE SCOUR CRITICAL ELEVATIONS ARE USED BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

SPT TESTING IS NOT REQUIRED TO DETERMINE THE TIP BEARING CAPACITY OF THE DRILLED PIERS AT BENTS NO. 1, 2 AND 3.

SLURRY CONSTRUCTION SHALL NOT BE USED FOR THIS PROJECT.

SID INSPECTIONS ARE NOT REQUIRED TO DETERMINE THE BOTTOM CLEANLINESS OF THE DRILLED PIERS AT BENTS NO. 1, 2 AND 3.

CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR THE DRILLED PIERS AT BENTS NO. 1, 2 AND 3. SEE SPECIAL PROVISIONS FOR CROSSHOLE SONIC LOGGING.

THE CONTRACTOR SHALL OBSERVE A ONE-MONTH WAITING PERIOD BEFORE BEGINNING ANY WORK FOR END BENT CONSTRUCTION AFTER COMPLETION OF THE EMBANKMENT AT EACH END BENT. THE CONTRACTOR MAY BEGIN THE REINFORCED BRIDGE APPROACH FILL CONSTRUCTION AFTER COMPLETION OF END BENT INCLUDING WINGWALLS.

PILES FOR END BENTS NO. 1 AND 2 SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 620 kN EACH.

WHEN DRIVING PILES, THE MAXIMUM BLOW COUNT SHALL NOT BE EXCEEDED.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

FOR WORK BRIDGE, SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS. FOR PAY ITEM FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS, SEE LEFT LANE.

FOR ELECTRICAL CONDUIT SYSTEM, SEE SPECIAL PROVISIONS.

METRIC

NORTH CAROLINA PROFESSIONAL SEAL 4674 ENGINEER BABU NALLAMALA
12-13-02
S. Babu Nallamala

Nallamala & Wilson, P.A.
1399 Ashleybrook Lane, Suite 130
Winston-Salem, N.C. 27103-2918
Ph: (336) 765-4651 Fax: (336) 765-6194

DWG. NO. 2101(2)RS-3

PROJECT NO. R-2000G
WAKE COUNTY
STATION: 445+88.000 -L- POT

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON I-540 (RALEIGH OUTER LOOP) OVER BEAVERDAM CREEK BETWEEN SR 2217 & US-64

RIGHT LANE

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	3-71
1			3			TOTAL SHEETS
2			4			145

F. A. PROJ. NO. NHF-123-1 (12)

(-)0.3000% (+)2.8397%

PI STA. =444+00.000
ELEV. = 64.951
VC = 200.000m

-L- GRADE DATA

445+00.000 445+20.000 445+40.000 445+60.000 445+80.000 446+00.000 446+20.000 446+40.000 446+60.000 446+80.000

75.000 70.000 65.000 60.000 55.000 50.000 45.000

RIGHT LANE GRADE LINE EL. 68.408 AT FILL FACE END BENT 1 STA. 445+21.730 -L-

BEGIN FRONT SLOPE STA. 445+18.236 -L- RIGHT LANE GRADE LINE EL. 68.309

480mm BERM (NORMAL TO CAP)
300mm EARTH BERM (NORMAL TO CAP)
SLOPE 1.5 : 1 (NORMAL TO CAP)
EXP. 450
PLAIN RIP RAP CLASS II (TYP.)
HP360x108 STEEL PILES
FILL
EL. 61.0±
APPROXIMATE EXISTING GROUNDLINE
EL. 60.8±
EL. 60.0±
TOP OF DRILLED PIERS EL. 58.550

SPAN A

EXP. EXP.
EL. 57.0±
EL. 57.8±
1.372m DIA. DRILLED PIER

SPAN B

HIGH WATER EL. 59.4± (9/96)
NORMAL WATER SURFACE EL. 58.25 (2-6-97)
EL. 56.8±
EL. 56.0±
EL. 57.2±
1.372m DIA. DRILLED PIER
FIX. FIX.
TOP OF DRILLED PIERS EL. 58.550

SPAN C

EL. 58.0±
EXP. EXP.
TOP OF DRILLED PIERS EL. 59.200
EL. 59.7±
EL. 59.5±
1.372m DIA. DRILLED PIER

SPAN D

RIGHT LANE GRADE LINE EL. 72.172 AT FILL FACE END BENT 2 STA. 446+54.270 -L-
480mm BERM (NORMAL TO CAP)
300mm EARTH BERM (NORMAL TO CAP)
BEGIN FRONT SLOPE STA. 446+58.130 -L- RIGHT LANE GRADE LINE EL. 72.281
SLOPE 1.5 : 1 (NORMAL TO CAP)
450
EXP.
HP360x108 STEEL PILES
FILL
EL. 61.0±
EL. 60.5±
EL. 63.0±
EL. 64.6±

END BENT 1 BENT 1 BENT 2 BENT 3 END BENT 2

SECTION ALONG RIGHT LANE GRADE LINE

(BENTS ON SECTION AT RIGHT ANGLES TO BENTS)

132.540m TOTAL LENGTH OF BRIDGE FROM FILL FACE TO FILL FACE

33.270m | 33.000m | 33.000m | 33.270m

℄ BENT 1 STA.445+55.000 -L-
℄ BENT 2 STA.445+88.000 -L-
℄ BENT 3 STA.446+21.000 -L-
℄ BRIDGE STA.445+88.000 -L-

TO BUFFALOE RD.

-L-

10.500m

RIGHT LANE GRADE LINE

BEGIN APPROACH SLAB STA. 445+16.855 -L-

BEGIN FRONT SLOPE STA. 445+18.236 -L-

W. P. 1R AT FILL FACE END BENT 1 STA. 445+21.730 -L-

BERM EL. 65.492 (TYPICAL)

480mm BERM

LIMIT OF PAY FOR CLASS II RIP RAP

CLASS II RIP RAP (ROADWAY DETAIL & PAY ITEM)

PLAIN RIP RAP CLASS II

WORK BRIDGE

W. P. 2R

90°00'00.0" (TYP.)

W. P. 3R

WORK BRIDGE

W. P. 4R

WORK BRIDGE

BERM EL. 69.222 (TYPICAL)

W. P. 5R AT FILL FACE END BENT 2 STA. 446+54.270 -L-

TO POOLE RD.

END APPROACH SLAB STA. 446+59.145 -L-

BEGIN FRONT SLOPE STA. 446+58.130 -L-

480mm BERM

PLAIN RIP RAP CLASS II

LIMIT OF PAY FOR CLASS II RIP RAP

CLASS "B" RIP RAP (ROADWAY DETAIL & PAY ITEM)

WATERS EDGE

BEAVERDAM CREEK

WATERS EDGE

PLAN

PILES NOT SHOWN FOR CLARITY

METRIC

PROJECT NO. R-2000G

WAKE COUNTY

STATION: 445+88.000 -L- POT

SHEET 1 OF 2 BRIDGE NO. 1015

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING FOR BRIDGE ON I-540 (RALEIGH OUTER LOOP) OVER BEAVERDAM CREEK BETWEEN SR 2217 & US-64

RIGHT LANE

NORTH CAROLINA PROFESSIONAL SEAL 4674 ENGINEER S. BABU NALLAMALA
12-13-02

Nallamala & Wilson, P.A.
1399 Ashleybrook Lane, Suite 130
Winston-Salem, N.C. 27103-2918
Ph: (336) 765-4651 Fax: (336) 765-6194

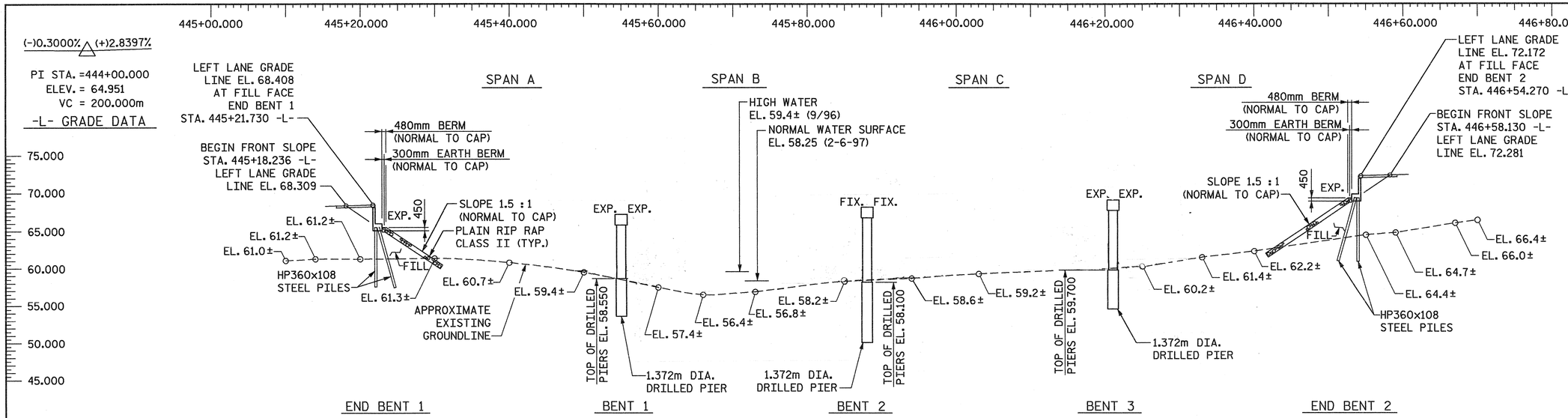
DWG. NO. 2101(2)RS-1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	C-69
1			3			TOTAL SHEETS
2			4			145

DRAWN BY : WESLEY I. JONES, III DATE : 10/14/02
CHECKED BY : DATE : 12-12-02

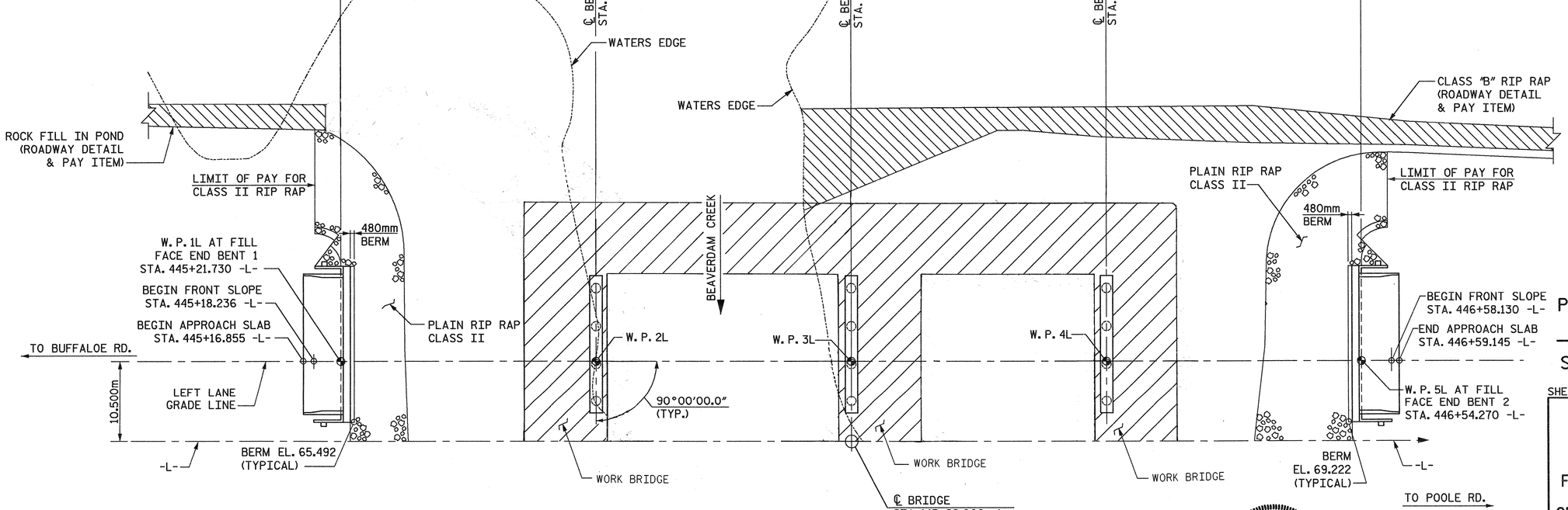
R2000G_SD_GD1_2RS.DGN

F. A. PROJ. NO. NHF-123-1 (12)



SECTION ALONG LEFT LANE GRADE LINE

(BENTS ON SECTION AT RIGHT ANGLES TO BENTS)



PLAN

PILES NOT SHOWN FOR CLARITY

METRIC

PROJECT NO. R-2000G

WAKE COUNTY

STATION: 445+88.000 -L- POT

SHEET 1 OF 3 BRIDGE NO. 1014

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING FOR BRIDGE ON I-540 (RALEIGH OUTER LOOP) OVER BEAVERDAM CREEK BETWEEN SR 2217 & US-64

LEFT LANE

NORTH CAROLINA PROFESSIONAL SEAL 4674 ENGINEER S. BABU NALLAMALA
12-13-02

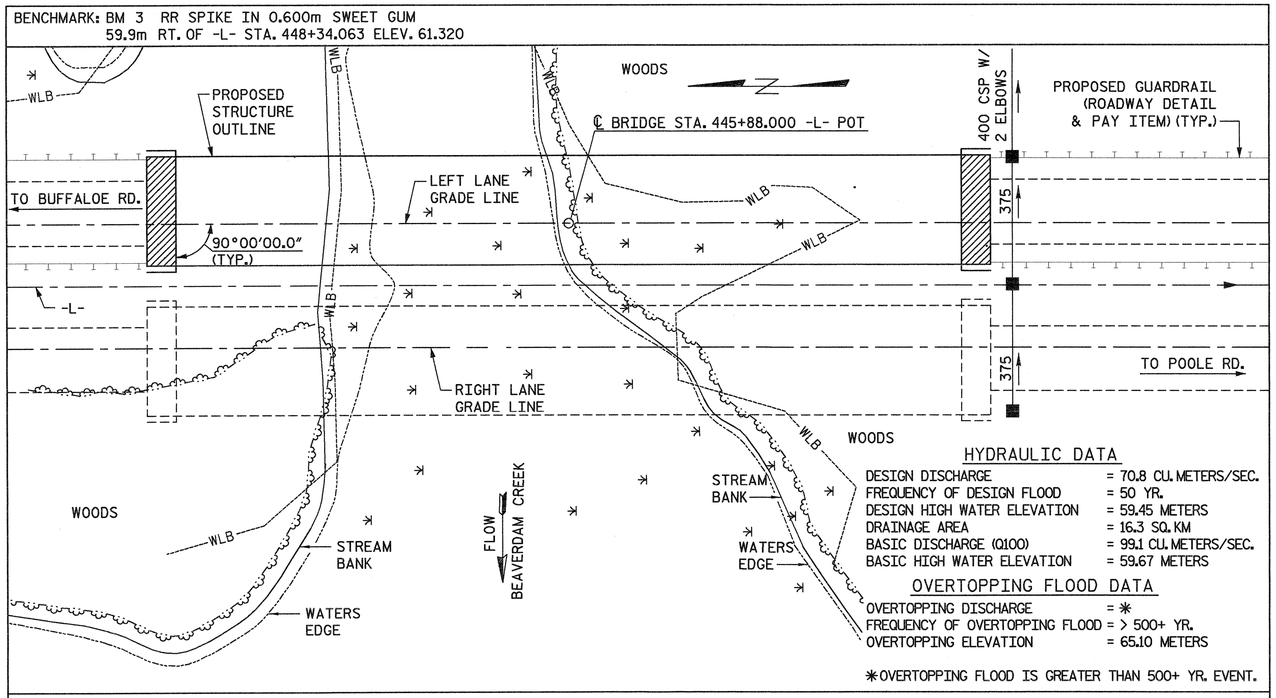
Nallamala & Wilson, P.A.
1399 Ashleybrook Lane, Suite 130
Winston-Salem, N.C. 27103-2918
Ph: (336) 765-4651 Fax: (336) 765-6194

DWG. NO. 2101(2)LS-1

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-35
1			3			TOTAL SHEETS
2			4			145

DRAWN BY : WESLEY I. JONES, III DATE : 09/12/02
CHECKED BY : DATE : 12-12-02

R2000G_SD_GD1_2LS.DGN



HYDRAULIC DATA

DESIGN DISCHARGE	= 70.8 CU. METERS/SEC.
FREQUENCY OF DESIGN FLOOD	= 50 YR.
DESIGN HIGH WATER ELEVATION	= 59.45 METERS
DRAINAGE AREA	= 16.3 SQ. KM
BASIC DISCHARGE (Q100)	= 99.1 CU. METERS/SEC.
BASIC HIGH WATER ELEVATION	= 59.67 METERS

OVERTOPPING FLOOD DATA

OVERTOPPING DISCHARGE	= ✱
FREQUENCY OF OVERTOPPING FLOOD	= > 500+ YR.
OVERTOPPING ELEVATION	= 65.10 METERS

✱OVERTOPPING FLOOD IS GREATER THAN 500+ YR. EVENT.

LOCATION SKETCH

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

NOTES

ASSUMED LIVE LOAD = MS18 OR ALTERNATE LOADING.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR SEISMIC DESIGN OF HIGHWAY BRIDGES FOR SEISMIC PERFORMANCE CATEGORY A.

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.

ALL ELEVATIONS ARE IN METERS.

THIS BRIDGE HAS BEEN DESIGNED BY THE STRENGTH DESIGN METHOD AS SPECIFIED IN AASHTO STANDARD SPECIFICATIONS.

FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SNSM.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 360,000 kg OF REINFORCING STEEL, ONE 760mm SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 360,000 kg OF REINFORCING STEEL, TWO 760mm SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE, PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS.

THE CLASS AA CONCRETE IN THE BRIDGE DECK SHALL CONTAIN FLY ASH OR GROUND GRANULATED BLAST FURNACE SLAG AT THE SUBSTITUTION RATE SPECIFIED IN ARTICLE 1024-1 AND IN ACCORDANCE WITH ARTICLES 1024-5 AND 1024-6 OF THE STANDARD SPECIFICATIONS. NO PAYMENT WILL BE MADE FOR THIS SUBSTITUTION AS IT IS CONSIDERED INCIDENTAL TO THE COST OF THE REINFORCED CONCRETE DECK SLAB.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", NOVEMBER, 1995.

FOR METRIC STRUCTURAL STEEL, SEE SPECIAL PROVISIONS.

THE DRILLED PIERS FOR BENTS NO. 1, 2 AND 3 HAVE BEEN DESIGNED FOR BOTH SKIN FRICTION AND TIP BEARING. THE REQUIRED TIP BEARING CAPACITY IS 1915 kPa.

THE REQUIRED TIP BEARING CAPACITY AT BENTS NO. 1, 2 AND 3 SHALL BE VERIFIED.

THE DRILLED PIERS FOR BENTS NO. 1, 2 AND 3 HAVE BEEN DESIGNED FOR AN APPLIED LOAD OF 2,510 kN EACH AT THE TOP OF THE COLUMN.

PERMANENT STEEL CASING IS REQUIRED FOR THE DRILLED PIERS AT BENT NO. 1 AND THE CASINGS SHALL NOT EXTEND BELOW THE FOLLOWING LISTED ELEVATIONS FROM LEFT TO RIGHT : SHAFT 1 = 56.5m, SHAFT 2 = 56.5m, SHAFT 3 = 56.5m, SHAFT 4 = 55.5m WITHOUT THE ENGINEER'S PERMISSION.

PERMANENT STEEL CASING IS REQUIRED FOR THE DRILLED PIERS AT BENT NO. 2 AND THE CASINGS SHALL NOT EXTEND BELOW THE FOLLOWING LISTED ELEVATIONS FROM LEFT TO RIGHT : SHAFT 1 = 54.5m, SHAFT 2 = 54.5m, SHAFT 3 = 55.0m, SHAFT 4 = 52.5m WITHOUT THE ENGINEER'S PERMISSION.

PERMANENT STEEL CASING IS NOT REQUIRED FOR THE DRILLED PIERS AT BENT NO. 3.

FOR PERMANENT STEEL CASING, SEE SPECIAL PROVISIONS FOR DRILLED PIERS.

DRILLED PIERS AT BENT NO. 1 SHALL EXTEND TO ELEVATIONS NO HIGHER THAN THE FOLLOWING LISTED ELEVATIONS FROM LEFT TO RIGHT: SHAFT 1 = 53.5m, SHAFT 2 = 53.5m, SHAFT 3 = 53.5m, SHAFT 4 = 51.5m AND SATISFY THE REQUIRED TIP BEARING CAPACITY.

DRILLED PIERS AT BENT 2 SHALL EXTEND TO ELEVATIONS NO HIGHER THAN THE FOLLOWING LISTED ELEVATIONS FROM LEFT TO RIGHT: SHAFT 1 = 51.0m, SHAFT 2 = 51.0m, SHAFT 3 = 49.0m, SHAFT 4 = 48.0m AND SATISFY THE REQUIRED TIP BEARING CAPACITY.

DRILLED PIERS AT BENT 3 SHALL EXTEND TO AN ELEVATION NO HIGHER THAN 54.5m FOR ALL SHAFTS AND SATISFY THE REQUIRED TIP BEARING CAPACITY.

THE SCOUR CRITICAL ELEVATION FOR BENT NO. 1 IS 55.0. THESE ELEVATIONS ARE FOR USE BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE SCOUR CRITICAL ELEVATIONS FOR BENT NO. 2 ARE 53.0. THESE ELEVATIONS ARE USED BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

THE SCOUR CRITICAL ELEVATIONS FOR BENT NO. 3 ARE 56.5. THESE ELEVATIONS ARE USED BY MAINTENANCE FORCES TO MONITOR POSSIBLE SCOUR PROBLEMS DURING THE LIFE OF THE STRUCTURE.

FOR DRILLED PIERS, SEE SPECIAL PROVISIONS.

SPT TESTING IS NOT REQUIRED TO DETERMINE THE TIP BEARING CAPACITY OF THE DRILLED PIERS AT BENTS NO. 1, 2 AND 3.

SLURRY CONSTRUCTION SHALL NOT BE USED FOR THIS PROJECT.

SID INSPECTIONS ARE NOT REQUIRED TO DETERMINE THE BOTTOM CLEANLINESS OF THE DRILLED PIERS AT BENTS NO. 1, 2 AND 3.

CSL TUBES ARE REQUIRED AND CSL TESTING MAY BE REQUIRED FOR THE DRILLED PIERS AT BENTS NO. 1, 2 AND 3. SEE SPECIAL PROVISIONS FOR CROSSHOLE SONIC LOGGING.

THE CONTRACTOR SHALL OBSERVE A ONE-MONTH WAITING PERIOD BEFORE BEGINNING ANY WORK FOR END BENT CONSTRUCTION AFTER COMPLETION OF THE EMBANKMENT AT EACH END BENT. THE CONTRACTOR MAY BEGIN THE REINFORCED BRIDGE APPROACH FILL CONSTRUCTION AFTER COMPLETION OF END BENT INCLUDING WINGWALLS.

PILES FOR END BENTS NO. 1 AND 2 SHALL BE DRIVEN TO A MINIMUM BEARING CAPACITY OF 620 kN EACH.

WHEN DRIVING PILES, THE MAXIMUM BLOW COUNT SHALL NOT BE EXCEEDED.

FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

NEEDLE BEAMS WILL NOT BE ALLOWED UNLESS OTHERWISE CALLED FOR ON THE PLANS OR APPROVED BY THE ENGINEER.

FOR WORK BRIDGE, SEE SPECIAL PROVISIONS FOR CONSTRUCTION, MAINTENANCE AND REMOVAL OF TEMPORARY ACCESS.

TOTAL BILL OF MATERIAL

	CONSTRUCTION, MAINTENANCE & REMOVAL OF TEMPORARY ACCESS	1372mm DIA. DRILLED PIERS NOT IN SOIL	1372mm DIA. DRILLED PIERS IN SOIL	PERMANENT STEEL CASING FOR 1372mm DIA. DRILLED PIERS	CROSSHOLE SONIC LOGGING	CSL TUBES	REINFORCED CONCRETE DECK SLAB	GROOVING BRIDGE FLOORS	CLASS A CONCRETE	BRIDGE APPROACH SLABS
	LUMP SUM	LIN. METERS	LIN. METERS	LIN. METERS	EACH	LIN. METERS	SQ. METERS	SQ. METERS	CU. METERS	LUMP SUM
SUPERSTRUCTURE	———	———	———	———	———	———	2,418.7	2.331.6	———	———
END BENT 1	———	———	———	———	———	———	———	———	47.5	LUMP SUM
BENT 1	LUMP SUM	11.0	11.2	9.2	1	101.0	———	———	70.0	———
BENT 2	LUMP SUM	12.0	21.4	15.9	1	145.8	———	———	76.5	———
BENT 3	LUMP SUM	13.0	7.8	———	1	95.4	———	———	73.4	———
END BENT 2	———	———	———	———	———	———	———	———	48.8	LUMP SUM
TOTAL	LUMP SUM	36.0	40.4	25.1	3	342.2	2,418.7	2,331.6	316.2	LUMP SUM

TOTAL BILL OF MATERIAL

	REINFORCING STEEL	SPIRAL COLUMN REINFORCING STEEL	MODIFIED 1829mm PRESTRESSED CONCRETE GIRDERS		HP360x108 STEEL PILES		CONCRETE BARRIER RAIL	PLAIN RIP RAP CLASS II (600mm THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	EXPANSION JOINT SEALS
	Kg	Kg	NO.	LIN. METERS	NO.	LIN. METERS	LIN. METERS	METRIC TONS	SQ. METERS	LUMP SUM	LUMP SUM
SUPERSTRUCTURE	———	———	24	785.760	——	———	263.760	———	———	LUMP SUM	LUMP SUM
END BENT 1	4,512	———	——	———	20	150.0	———	350	360	———	———
BENT 1	9,118	2,274	——	———	——	———	———	———	———	———	———
BENT 2	10,708	3,013	——	———	——	———	———	———	———	———	———
BENT 3	9,255	2,347	——	———	——	———	———	———	———	———	———
END BENT 2	4,591	———	——	———	20	160.0	———	410	415	———	———
TOTAL	38,184	7,634	24	785.760	40	310.0	263.760	760	775	LUMP SUM	LUMP SUM

PROJECT NO. R-2000G

WAKE COUNTY

STATION: 445+88.000 -L- POT

SHEET 3 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

GENERAL DRAWING
FOR BRIDGE ON I-540 (RALEIGH OUTER LOOP) OVER BEAVERDAM CREEK BETWEEN SR 2217 & US-64

LEFT LANE

METRIC

NORTH CAROLINA PROFESSIONAL SEAL 4674 ENGINEER S. BABU NALLAMALA 12-13-02

Nallamala & Wilson, P.A.
1399 Ashleybrook Lane, Suite 130
Winston-Salem, N.C. 27103-2918
Ph: (336) 765-4651 Fax: (336) 765-6194

DWG. NO. 2101(2)LS-3

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-37
1			3			TOTAL SHEETS
2			4			145

DRAWN BY : WESLEY I. JONES, III DATE : 09/12/02
CHECKED BY : DATE : 12-12-02

R2000G_SD_GD3_2LS.DGN